

REMARKS

This application has been carefully reviewed in light of the Office Action dated June 10, 2003 (Paper No. 11). Claims 4 to 7 and 19 have been rejected, without prejudice or disclaimer of subject matter, and Claims 22 to 32 have been newly added herein. Claims 1 to 3, 8 to 18, and 20 to 32 are in the application, of which Claims 1, 11, 20, and 22 are the independent Claims. Reconsideration and further examination are respectfully requested.

In the Office Action, Claim 11 was rejected under 35 U.S.C. § 102(e) over U.S. Patent No. 5,804,832 (Crowell); Claims 11 and 18 were rejected under 35 U.S.C. § 102(e) over U.S. Patent No. 5,661,309 (Jeromin '309); Claims 1 to 4, 8 and 9 were rejected under 35 U.S.C. § 103(a) over Crowell; Claims 5 to 7, and 12 to 17 were rejected under 35 U.S.C. § 103(a) over Crowell in view of United Kingdom Patent Application No. 2 057 628 (Turner); Claim 10 was rejected under 35 U.S.C. § 103(a) over Crowell in view of U.S. Patent No. 5,381,014 (Jeromin '014); Claim 19 was rejected under 35 U.S.C. § 103(a) over Crowell and/or Turner and/or Jeromin '309, in view of Jeromin '014; and Claims 20 to 22 were rejected under 35 U.S.C. § 103(a) over Jeromin '309 in view of Jeromin '014. As noted above, Claims 4 to 7 and 19 have been cancelled, without prejudice or disclaimer of subject matter, and without conceding the correctness of their rejections.

Reconsideration and withdrawal of the remaining rejections are respectfully requested.

The present invention generally concerns a two-dimensional image pickup apparatus comprising an apparatus cabinet and a photoelectric converter unit contained in the apparatus cabinet. The photoelectric converter unit comprises a substrate and a plurality of photoelectric converters formed on the substrate.

According to one aspect of the present invention, the apparatus cabinet has an inner mounting surface and a deformable top plate, and the two-dimensional photoelectric converter unit is contained in the apparatus cabinet. The two-dimensional photoelectric converter unit is carried by a base member which is directly mounted onto the inner mounting surface, where the top plate is arranged opposite to a light-receiving surface of the two-dimensional photoelectric converter unit. Furthermore, the top plate is less rigid than the base member.

In another aspect, the photoelectric converter unit is contained in the apparatus cabinet and is positioned out of contact with the apparatus cabinet, where the plurality of photoelectric converters are formed at a light-receiving surface of the substrate. The apparatus further comprises a shock absorber arranged between the light-receiving surface of the substrate and the apparatus cabinet.

In an additional aspect, the photoelectric converter unit is positioned out of contact with the apparatus cabinet, and further comprises a light-receiving surface, a fluorescent member, and a shock absorber. The light-receiving surface comprises a plurality of photoelectric converters formed on the substrate member, where the fluorescent member is arranged between the light-receiving surface and the apparatus cabinet. The shock absorber is arranged between the fluorescent member and the apparatus cabinet.

In a further additional aspect, the photoelectric converter is positioned out of contact with the apparatus cabinet, and further comprises a fluorescent member arranged at a light-receiving surface of the photoelectric converter unit. The apparatus further comprises a shock absorber arranged between the light-receiving surface of the photoelectric converter unit and the apparatus cabinet.

Thus, among its many features, the present invention is seen to provide for at least the features of (i) a photoelectric converter unit carried by a base member which is directly mounted onto the inner mounting surface of the apparatus cabinet, or (ii) a shock absorber arranged between the light-receiving surface of the substrate of the photoelectric converter unit and the apparatus cabinet, where the photoelectric converter unit is positioned out of contact with the apparatus cabinet.

Referring specifically to the claims, amended Independent Claim 1 defines a two-dimensional image pickup apparatus comprising an apparatus cabinet having an inner mounting surface and a deformable top plate, and a two-dimensional photoelectric converter unit contained in the apparatus cabinet. The two-dimensional photoelectric converter is carried by a base member which is directly mounted onto the inner mounting surface, and the two-dimensional photoelectric converter unit comprises a substrate and a plurality of photoelectric converters formed on the substrate. The top plate is arranged opposite to a light-receiving surface of the two-dimensional photoelectric converter unit, and is less rigid than the base member.

Amended independent Claim 11 defines a two-dimensional image pickup apparatus comprising an apparatus cabinet and a photoelectric converter unit contained in the apparatus cabinet and positioned out of contact with the apparatus cabinet. The photoelectric converter unit comprises a substrate and a plurality of photoelectric converters formed on the substrate at a light-receiving surface of said substrate. The two-dimensional image pickup apparatus further comprises a shock absorber arranged between the light-receiving surface of the substrate and the apparatus cabinet.

Amended independent Claim 20 defines a radiation detecting device including a two-dimensional image pickup apparatus. The radiation detecting device

comprises an apparatus cabinet, and a two-dimensional photoelectric converter unit contained in the apparatus cabinet and positioned out of contact with the apparatus cabinet. The two-dimensional photoelectric converter unit comprises a substrate member, a light-receiving surface, a fluorescent member, and a shock absorber. The light-receiving surface comprises a plurality of photoelectric converters formed on the substrate member, and the fluorescent member is arranged between the light-receiving surface and the apparatus cabinet. Furthermore, the shock absorber is arranged between the fluorescent member and the apparatus cabinet.

Amended independent Claim 22 defines a radiation detecting apparatus comprising an apparatus cabinet and a photoelectric converter unit contained in the apparatus cabinet and positioned out of contact with the apparatus cabinet. The photoelectric converter unit comprises a substrate, a plurality of photoelectric converters formed on the substrate, and a fluorescent member arranged at a light-receiving surface of the photoelectric converter unit. The radiation detecting apparatus further comprises a shock absorber arranged between the light-receiving surface of the photoelectric converter unit and the apparatus cabinet.

The applied art is not seen to teach or disclose the features of the present invention. In particular, the applied art is not seen to provide for the features of (i) a photoelectric converter unit carried by a base member which is directly mounted onto the inner mounting surface of the apparatus cabinet, or (ii) a shock absorber arranged between the light-receiving surface of the substrate of the photoelectric converter unit and the apparatus cabinet, where the photoelectric converter unit is positioned out of contact with the apparatus cabinet.

Crowell discloses a digital array for capturing a radiogram, where the array includes a generally flat base on which is mounted with a plurality of shock absorbing mounts rigid support plate. See Crowell, Abstract; col. 2, ll. 14 to 28; and Figure 5. In particular, in Crowell, an enclosure 13, or apparatus cabinet, is seen to contain a floating support arrangement where shock absorbing mounts 40 support a radiation detection panel 22, or photoelectric converter unit. See col. 4, ll. 32 to 38. As depicted in Figure 5, the shock absorbing mounts support base plate 44 along the bottom, support side of radiation detection panel 22, and are not arranged between the enclosure 13 and electro-luminescent, or light-receiving panels 50 or 52. See col. 5, ll. 17 to 38; and Figure 5.

As such, Crowell is not seen to teach or to suggest at least the features of (i) a photoelectric converter unit carried by a base member which is directly mounted onto the inner mounting surface of the apparatus cabinet, or (ii) a shock absorber arranged between the light-receiving surface of the substrate of the photoelectric converter unit and the apparatus cabinet, where the photoelectric converter unit is positioned out of contact with the apparatus cabinet.

Jeromin '309 is likewise not seen to teach or suggest the features of the present invention. Specifically, Jeromin '309 discloses an electronic cassette containing an X-ray image capturing panel, including a solid state transistor array and storage capacitors on which is built a layered structure including a photoconductive layer. See Jeromin '309, Abstract; col. 2, ll. 31 to 44; and Figure 1. In Jeromin '309, electronic cassette 20 is formed by joining front and back member 23 and 24, which together are seen to correspond to an apparatus cabinet, and affixing internally placed elements into a cavity formed therebetween. See Jeromin '309, col. 3, ll. 30 to 34; and Figure 1. As clearly depicted in Figure 1 of Jeromin '309, however, image capture panel 16, comprising substrate layer 12

and photoconductive layer 8, is seen to be directly affixed to back member 24. See Jeromin '309, col. 3, ll. 30 to 63; Figure 1; and Figure 5.

As such, Jeromin '309 is not seen to teach or to suggest at least the features of (i) a photoelectric converter unit carried by a base member which is directly mounted onto the inner mounting surface of the apparatus cabinet, or (ii) a shock absorber arranged between the light-receiving surface of the substrate of the photoelectric converter unit and the apparatus cabinet, where the photoelectric converter unit is positioned out of contact with the apparatus cabinet.

Neither Jeromin '014 nor Turner are seen to remedy the deficiencies of Crowell or Jeromin '309. In particular, neither Jeromin '014 nor Turner are seen to disclose or to suggest at least the features (i) a photoelectric converter unit carried by a base member which is directly mounted onto the inner mounting surface of the apparatus cabinet, or (ii) a shock absorber arranged between the light-receiving surface of the substrate of the photoelectric converter unit and the apparatus cabinet, where the photoelectric converter unit is positioned out of contact with the apparatus cabinet.

As such, even if Crowell, Jeromin '309, Jeromin '014 and/or Turner are combined in the manner proposed in the Office Action (assuming for argument's sake that such combination would be permissible), the result would not be seen to disclose or to suggest at least the features of (i) a photoelectric converter unit carried by a base member which is directly mounted onto the inner mounting surface of the apparatus cabinet, or (ii) a shock absorber arranged between the light-receiving surface of the substrate of the photoelectric converter unit and the apparatus cabinet, where the photoelectric converter unit is positioned out of contact with the apparatus cabinet.

Accordingly, based on the foregoing amendments and remarks, independent Claims 1, 11, 20 and 22 are believed to be allowable over the applied references.

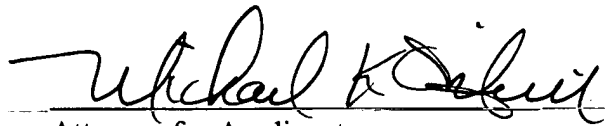
The other rejected claims in the application are each dependent from the independent claims and are believed to be allowable over the applied references for at least the same reasons. Because each dependent claim is deemed to define additional aspects of the invention, however, the individual consideration of each on its own merits is respectfully requested.

Finally, as to a formal matter, Applicant requests that the Examiner return an initialed copy of the Form PTO-1449 which accompanied the Information Disclosure Statement dated July 17, 2003.

In view of the foregoing amendments and remarks, the entire application is believed to be in condition for allowance and such action is respectfully requested of the Examiner's earliest convenience.

Applicant's undersigned attorney may be reached in our Costa Mesa,
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Respectfully submitted,



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